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000000  TTTTTTTTTT  SSSSSSSS  LL      UU      UU  NN      NN
000000  TTTTTTTTTT  SSSSSSSS  LL      UU      UU  NN      NN
00      TT      SS      LL      UU      UU  NN      NN
00      TT      SS      LL      UU      UU  NN      NN
00      TT      SS      LL      UU      UU  NNNN     NN
00      TT      SSSSSS  LL      UU      UU  NNNN     NN
00      TT      SSSSSS  LL      UU      UU  NN      NN
00      TT      SS      LL      UU      UU  NN      NN
00      TT      SS      LL      UU      UU  NN      NN
00      TT      SS      LL      UU      UU  NN      NN
00      TT      SS      LL      UU      UU  NN      NN
000000  TT      SSSSSSSS  LLLLLLLLLL  UUUUUUUUUU  NN      NN
000000  TT      SSSSSSSS  LLLLLLLLLL  UUUUUUUUUU  NN      NN
                                ....
                                ....
                                ....
                                ....

LL      IIIIII  SSSSSSSS
LL      IIIIII  SSSSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SSSSSS
LL      II      SSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LLLLLLLL  IIIIII  SSSSSSSS
LLLLLLLL  IIIIII  SSSSSSSS
```


(2) 50
(3) 84
(4) 168
(5) 252

DECLARATIONS
OTSS\$GET_LUN - Allocate one logical unit number
OTSS\$FREE_LUN - Deallocate one logical unit number
OTSS\$TAKE_LUN - Take a particular LUN

```

0000 1      .TITLE OTSS$SLUN - Resource allocator for logical unit numbers
0000 2      .IDENT /1-003/ ; File: OTSLUN.MAR
0000 3
0000 4
0000 5 :*****
0000 6 :
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0000 24 :
0000 25 :
0000 26 :*****
0000 27 :
0000 28 :
0000 29 :++
0000 30 : FACILITY: Language-independent language support
0000 31 :
0000 32 : ABSTRACT:
0000 33 :
0000 34 :     Three routines for allocating and deallocating logical unit
0000 35 :     numbers. Using these routines allows use of logical unit
0000 36 :     numbers by multiple procedures without conflicts.
0000 37 :
0000 38 : ENVIRONMENT: User Mode, AST Reentrant
0000 39 :
0000 40 : --
0000 41 : AUTHOR: John Sauter, CREATION DATE: 26-JAN-1979
0000 42 :
0000 43 : MODIFIED BY:
0000 44 :
0000 45 :
0000 46 : 1-001 - Original from LIB$EF. JBS 26-JAN-1979
0000 47 : 1-002 - Don't try to use FFC with a 100-bit size. JBS 26-JAN-1979
0000 48 : 1-003 - Allocate 100 bits, not 99. JBS 27-JAN-1979

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```

0000 84 .SBTTL OTSS$GET_LUN - Allocate one logical unit number
0000 85 :++
0000 86 : FUNCTIONAL DESCRIPTION:
0000 87 :
0000 88 : OTSS$GET_LUN allocates one logical unit number from a process-wide
0000 89 : pool. If a LUN is available for use, its number is returned
0000 90 : to the caller. If no LUNs are available, an error is returned
0000 91 : as the function value.
0000 92 :
0000 93 : CALLING SEQUENCE:
0000 94 :
0000 95 : status.wlc.v = OTSS$GET_LUN (LUN.wl.r)
0000 96 :
0000 97 : INPUT PARAMETERS:
0000 98 :
0000 99 : NONE
0000 100 :
0000 101 : IMPLICIT INPUTS:
0000 102 :
0000 103 : LUN_POOL, a table of available logical unit numbers in
0000 104 : OWN storage
0000 105 :
0000 106 : OUTPUT PARAMETERS:
0000 107 :
0000 108 : LUN.wl.r - The LUN allocated, or -1 if none were available.
0000 109 :
0000 110 : IMPLICIT OUTPUTS:
0000 111 :
0000 112 : If successful, an entry is made into LUN_POOL indicating that
0000 113 : a logical unit number has been reserved.
0000 114 :
0000 115 : FUNCTION VALUE:
0000 116 : COMPLETION CODES:
0000 117 :
0000 118 : 1 = success, 0 = failure
0000 119 : SIDE EFFECTS:
0000 120 :
0000 121 : NONE
0000 122 :
0000 123 : --
0000 124 :
4000 0000 125 .ENTRY OTSS$GET_LUN, ^M<IV> ; Save nothing
0002 126 :
0002 127 :+
0002 128 : Scan LUN_POOL for first available LUN
0002 129 :-
0002 130 :
0002 131 SCAN:
0002 132 SKPC #255, #<LUB$K_LUN_MAX+8>/8, LUN_POOL
000B 133 BEQL ALL_OUT ; None available
000D 134 R0, #<LUB$K_LUN_MAX+8>/8, R0
0011 135 ASHL #3, R0, R0 ; Approximate LUN
0015 136 FFC #0, #8, (R1), R1 ; Find exact LUN
001A 137 BEQL SCAN ; An AST took all in this byte
001C 138 ADDL2 R1, R0 ; Exact LUN
001F 139 CMPL R0, #LUB$K_LUN_MAX ; Is it too big?
0026 140 BGTR ALL_OUT ; Yes, all LUNs are reserved

```

```

00000000'EF  OF  FF  8F  3B
          50  OF  50  C3
          50  50  03  78
51  61  08  00  EB
          E6  13
          50  C0
00000077 8F  50  D1
          10  14

```



```

0028 141
0028 142 :+
0028 143 :
0028 144 : Now recheck and set the bit under interlock, in case someone
0028 145 :- has set it at AST level in the meantime.
0028 146
0028 147 FOUND:
D2 00000000'EF 50 E2 0028 148 BBSS R0, LUN_POOL, SCAN ; Repeat scan if already set
0030 149
0030 150 :+
0030 151 : Return success with logical unit number in LUN.
0030 152 :-
0030 153
04 BC 50 D0 0030 154 MOVL R0, @lun(AP) ; Store LUN
50 01 D0 0034 155 MOVL #1, R0 ; SS$ NORMAL
04 04 0037 156 RET ; Exit
0038 157
0038 158 :+
0038 159 : Return error since no LUNs available
0038 160 :-
0038 161
04 BC 01 CE 0038 162 ALL_OUT:
50 04 D4 0038 163 MNEGL #1, @lun(AP) ; Set LUN to -1
04 04 003C 164 CLRL R0 ; Insufficient LUNs
003E 165 RET ; Exit
003F 166

```

```
003F 168 .SBTTL OTSS$FREE_LUN - Deallocate one logical unit number
003F 169 :++
003F 170 : FUNCTIONAL DESCRIPTION:
003F 171 :
003F 172 : OTSS$FREE_LUN is the complement of OTSS$GET_LUN. When a routine
003F 173 : called OTSS$GET_LUN to allocate a LUN, and no
003F 174 : longer needs it, OTSS$FREE_LUN should be called to free the
003F 175 : LUN for use by other routines.
003F 176 :
003F 177 : CALLING SEQUENCE:
003F 178 :
003F 179 : status.wlc.v = OTSS$FREE_LUN (LUN.rl.r)
003F 180 :
003F 181 : INPUT PARAMETERS:
003F 182 :
003F 183 : LUN.rl.r - The logical unit number to be
003F 184 : deallocated. This is the value returned
003F 185 : to the user by OTSS$GET_LUN.
003F 186 :
003F 187 : IMPLICIT INPUTS:
003F 188 :
003F 189 : LUN_POOL, a table of available logical unit numbers in OWN
003F 190 : storage.
003F 191 :
003F 192 : OUTPUT PARAMETERS:
003F 193 :
003F 194 : NONE
003F 195 :
003F 196 : IMPLICIT OUTPUTS:
003F 197 :
003F 198 : An entry is made in LUN_POOL indicating that the LUN
003F 199 : is free for use.
003F 200 :
003F 201 : FUNCTION VALUE:
003F 202 : COMPLETION CODES:
003F 203 :
003F 204 : 1 = success, 0 = failure
003F 205 : SIDE EFFECTS:
003F 206 :
003F 207 : NONE
003F 208 :
003F 209 : --
003F 210 :
003F 211 : .ENTRY OTSS$FREE_LUN, ^M<IV> ; Save nothing
0041 212 :
0041 213 : +
0041 214 : Check to see if LUN is in the proper range.
0041 215 : -
0041 216 :
00000077 8F 04 BC D1 0041 217 CMPL @lun(AP), #LUB$K_LUN_MAX ; Bigger than 99?
0049 218 BGTR RES_SYS_1 ; Yes, error
004B 219 TSTL @lun(AP) ; Less than 0?
004E 220 BLSS RES_SYS_1 ; Yes, error
0050 221 : +
0050 222 : LUN is in range. Now, unset the bit.
0050 223 : -
0050 224 :
```


OTSS\$SLUN
1-003

H 15
- Resource allocator for logical unit nu 16-SEP-1984 00:32:30 VAX/VMS Macro V04-00
OTSS\$FREE_LUN - Deallocate one logical u 6-SEP-1984 11:14:58 [LIBRTL.SRC]OTSLUN.MAR;1

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(4)

```
07 00000000'EF 04 BC E5 0050 225 BBCC @lun(AP), LUN_POOL, ALR_FRE ; Clear but error if
                                0059 226 ; already clear.
                                0059 227
                                0059 228 :+
                                0059 229 :+ Return success
                                0059 230 :-
                                0059 231
50 01 D0 0059 232 MOVL #1, R0 ; SSS_NORMAL
04 04 005C 233 RET
                                005D 234
                                005D 235 :+
                                005D 236 :+ Error if LUN is not in the proper range
                                005D 237 :-
                                005D 238
50 D4 005D 239 RES_SYS_1:
04 04 005F 240 CLRL R0 ; LUN invalid
                                0060 241 RET
                                0060 242
                                0060 243 :+
                                0060 244 :+ Error if LUN already free.
                                0060 245 :-
                                0060 246
50 D4 0060 247 ALR_FRE:
04 04 0060 248 CLRL R0 ; LUN already free
                                0062 249 RET
                                0063 250
```

```
0063 252 .SBTTL OTSS$TAKE_LUN - Take a particular LUN
0063 253 :++
0063 254 : FUNCTIONAL DESCRIPTION:
0063 255 :
0063 256 : OTSS$TAKE_LUN is used when a routine wants to allocate
0063 257 : a particular LUN. This is different
0063 258 : from OTSS$GET_LUN which allocates an arbitrary LUN.
0063 259 :
0063 260 : To deallocate an LUN reserved with OTSS$TAKE_LUN
0063 261 : use OTSS$FREE_LUN.
0063 262 :
0063 263 : CALLING SEQUENCE:
0063 264 :
0063 265 : status.wlc.v = OTSS$TAKE_LUN (LUN.rl.r)
0063 266 :
0063 267 : INPUT PARAMETERS:
0063 268 :
0063 269 : LUN - The logical unit number desired to be
0063 270 : allocated.
0063 271 :
0063 272 : IMPLICIT INPUTS:
0063 273 :
0063 274 : LUN_POOL, a table of available LUNs located in OWN
0063 275 : storage.
0063 276 :
0063 277 : OUTPUT PARAMETERS:
0063 278 :
0063 279 : NONE
0063 280 :
0063 281 : IMPLICIT OUTPUTS:
0063 282 :
0063 283 : An entry is made in LUN_POOL indicating that the LUN
0063 284 : is allocated.
0063 285 :
0063 286 : FUNCTION VALUE:
0063 287 : COMPLETION CODES:
0063 288 :
0063 289 : 1 = success, 0 = failure
0063 290 : SIDE EFFECTS:
0063 291 :
0063 292 : NONE
0063 293 :
0063 294 :--
0063 295 :
4000 0063 296 .ENTRY OTSS$TAKE_LUN, ^M<IV> ; Save nothing
0065 297 :
0065 298 :+
0065 299 : First check to see if LUN is in range.
0065 300 :-
0065 301 :
00000077 8F 04 BC D1 0065 302 CMPL @lun(AP) #LUB$K_LUN_MAX ; Greater than 99?
0065 303 BGTR RES_SYS_2 ; Yes, error
0065 304 TSTL @lun(AP) ; Less than 0?
0065 305 BLSS RES_SYS_2 ; Yes, error
0074 306 :+
0074 307 : Now attempt to allocate that LUN
0074 308 :-
```



```

07 00000000'EF 04 BC E2 0074 309
                        0074 310 BBSS @lun(AP), LUN_POOL, ALR_RES ; Reserve it, but error
                        007D 311 ; if already reserved.
                        007D 312
                        007D 313
                        007D 314
                        007D 315
                        007D 316
                        007D 317
                        0080 318
                        0081 319
                        0081 320
                        0081 321
                        0081 322
                        0081 323
                        0081 324 RES_SYS_2:
                        0081 325 CLRL R0 ; Invalid logical unit number
                        0083 326 RET ; Exit
                        0084 327
                        0084 328
                        0084 329
                        0084 330
                        0084 331
                        0084 332 ALR_RES:
                        0084 333 CLRL R0 ; Logical unit number taken already
                        0086 334 RET ; Exit
                        0087 335
                        0087 336 .END

```

OTSS\$SLUN
Symbol table

K 15
- Resource allocator for logical unit nu 16-SEP-1984 00:32:30 VAX/VMS Macro V04-00
6-SEP-1984 11:14:58 [LIBRTL.SRC]OTSLUN.MAR;1

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ALL_OUT	00000038	R	02
ALR_FRE	00000060	R	02
ALR_RES	00000084	R	02
FOUND	00000028	R	02
LUB\$K_LUN_MAX	= 00000077		
LUB\$K_LUN_MIN	= 00000000		
LUN	= 00000004		
LUN_POOL	00000000	R	01
OTSS\$FREE_LUN	0000003F	RG	02
OTSS\$GET_LUN	00000000	RG	02
OTSS\$TAKE_LUN	00000063	RG	02
RES_SYS_1	0000005D	R	02
RES_SYS_2	00000081	R	02
SCAN	00000002	R	02

+-----+
! Psect synopsis !
+-----+

PSECT name	Allocation	PSECT No.	Attributes
ABS	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
OTSS\$DATA	0000000F (15.)	01 (1.)	PIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG
OTSS\$CODE	00000087 (135.)	02 (2.)	PIC USR CON REL LCL SHR EXE RD NOWRT NOVEC LONG

+-----+
! Performance indicators !
+-----+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	31	00:00:00.05	00:00:00.59
Command processing	149	00:00:00.38	00:00:02.68
Pass 1	118	00:00:00.82	00:00:03.13
Symbol table sort	0	00:00:00.08	00:00:00.68
Pass 2	67	00:00:00.45	00:00:02.05
Symbol table output	3	00:00:00.01	00:00:00.01
Psect synopsis output	3	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	373	00:00:01.81	00:00:09.16

The working set limit was 1050 pages.
7533 bytes (15 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 146 non-local and 0 local symbols.
336 source lines were read in Pass 1, producing 18 object records in Pass 2.
6 pages of virtual memory were used to define 1 macro.

+-----+
! Macro library statistics !
+-----+

Macro library name	Macros defined
-\$255\$DUA28:[LIBRTL.OBJ]LIBRTL.MLB;1	1
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	0
TOTALS (all libraries)	1

OTSS\$SLUN
VAX-11 Macro Run Statistics - Resource allocator for logical unit ^{L 15} nu 16-SEP-1984 00:32:30 VAX/VMS Macro V04-00 Page 10
6-SEP-1984 11:14:58 [LIBRTL.SRC]OTSLUN.MAR;1 (5)

136 GETS were required to define 1 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LISS:OTSLUN/OBJ=OBJ\$:OTSLUN MSRC\$:OTSLUN/UPDATE=(ENH\$:OTSLUN)+LIB\$:LIBRTL/LI

0212 AH-BT13A-SE
VAX/VMS V4.0

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